We claim:

1. A method for determining crystallization conditions for a material, the method comprising:

taking a plurality of different crystallization samples in an enclosed microvolume, the plurality of crystallization samples comprising a material to be crystallized and crystallization conditions which vary among the plurality of crystallization samples;

allowing crystals of the material to form in plurality of crystallization samples; and

identifying which of the plurality of crystallization samples form crystals.

2. The method according to claim 1 wherein the material to be crystallized is a macromolecule.

3. The method according to claim 1 wherein the material to be crystallized is a protein.

4. The method according to claim 1 wherein the material to be crystallized is a macromolecule with a molecular weight of at least 500 daltons.

5. A method according to claim 1 wherein the material to be crystallized is selected from the group consisting of viruses, proteins, peptides, nucleosides, nucleotides, ribonucleic acids, deoxyribonucleic acids.

6. A method according to claim 1 wherein the material to be crystallized is selected from the group consisting of viruses, proteins, peptides, nucleosides, nucleotides, ribonucleic acids, deoxyribonucleic acids.

7. A method according to claim 1 wherein the enclosed microvolume is a lumen.

8. A method according to claim 1 wherein the enclosed microvolume is a lumen with a cross sectional diameter of less than 2.5 mm.

9. A method according to claim 1 wherein the enclosed microvolume is a lumen with a cross sectional diameter of less than 1 mm.

10. A method according to claim 1 wherein the enclosed microvolume is a lumen with a cross sectional diameter of less than 500 microns.

11. A method according to claim 1 wherein the enclosed microvolume is a microchamber.

12. A method according to claim 1 wherein the enclosed microvolume is at least partially enclosed within a substrate which comprises other enclosed microvolumes which also comprise crystallization samples.

13. A method according to claim 1 wherein the enclosed microvolume is at least partially enclosed within a card shaped substrate.

14. A method according to claim 1, the method further comprising performing a spectroscopic analysis on a crystal formed within a microvolume within the microvolume.

15. A method according to claim 14, wherein the spectroscopic analysis is selected from the group consisting of Raman, UV/VIS, IR or x-ray spectroscopy.

16. A method according to claim 14, wherein the spectroscopic analysis is x-ray spectroscopy.

17. A method according to claim 1, wherein the microvolume is enclosed within a material defining the microvolume such that in a volume of the microvolume and the material defining the microvolume that an x-ray beam used for x-ray spectroscopy of a crystal will traverse in the process of performing x-ray spectroscopy on a crystal within the microvolume, the volume of the microvolume

contains at least as many electrons as the sum of the electrons contained in the volume of the material defining the microvolume that the x-ray beam will traverse.

18. A method according to claim 1, wherein the microvolume is enclosed within a material defining the microvolume such that in a volume of the microvolume and the material defining the microvolume that an x-ray beam used for x-ray spectroscopy of a crystal will traverse in the process of performing x-ray spectroscopy on a crystal within the microvolume, the volume of the microvolume contains at least three times as many electrons as the sum of the electrons contained in the volume of the material defining the microvolume that the x-ray beam will traverse.

19. A method according to claim 1, wherein the microvolume is enclosed within a material defining the microvolume such that in a volume of the microvolume and the material defining the microvolume that an x-ray beam used for x-ray spectroscopy of a crystal will traverse in the process of performing x-ray spectroscopy on a crystal within the microvolume, the volume of the microvolume contains at least five times as many electrons as the sum of the electrons contained in the volume of the material defining the microvolume that the x-ray beam will traverse.

20. A method according to claim 1, wherein the microvolume is enclosed within a material defining the microvolume such that in a volume of the microvolume and the material defining the microvolume that an x-ray beam used for x-ray spectroscopy of a crystal will traverse in the process of performing x-ray spectroscopy on a crystal within the microvolume, the volume of the microvolume contains at least ten times as many electrons as the sum of the electrons contained in the volume of the material defining the microvolume that the x-ray beam will traverse.

21. A method according to claim 1, wherein material defining the microvolume comprises a groove designed to reduce a number of electrons that an x-ray beam used for x-ray spectroscopy of a crystal will traverse in the process of performing x-ray spectroscopy on a crystal within the microvolume.

22. A method according to claim 1, wherein the method further comprises delivering the plurality of different crystallization samples to the enclosed microvolume.

23. A method according to claim 1, wherein the method further comprises forming the plurality of different crystallization samples within the enclosed microvolume.

24. A method according to claim 1, wherein one or more dividers is positioned between the crystallization samples to separate the crystallization samples within the enclosed microvolume.

25. A method according to claim 1, wherein the divider is formed of an impermeable material.

26. A method according to claim 25, wherein the impermeable material is an impermeable liquid.

27. A method according to claim 25, wherein the impermeable material is an impermeable solid.

28. A method according to claim 25, wherein the divider is formed of a permeable material.

29. A method according to claim 25, wherein the divider is formed of a semipermeable material.

30. A method according to claim 29, wherein the semipermeable material is a gas.

31. A method according to claim 29, wherein the semipermeable material is a liquid.

32. A method according to claim 29, wherein the semipermeable material is a gel.

33. A method according to claim 25, wherein the divider forms an interface selected from the group consisting of liquid/liquid, liquid/ gas interface, liquid/ solid and liquid/ sol-gel interface.

34. A method according to claim 25, wherein the divider is selected from the group consisting of a membrane, gel, frit, and matrix

35. A method according to claim 25, wherein the divider functions to modulate diffusion characteristics between adjacent crystallization samples.

36. A method according to claim 25, wherein the divider is formed of a semipermeable material which allows diffusion between adjacent crystallization samples.

37. A method for determining crystallization conditions for a material, the method comprising:

taking a plurality of different crystallization samples in a plurality of enclosed microvolumes, each microvolume comprising one or more crystallization samples, the crystallization samples comprising a material to be crystallized and crystallization conditions which vary among the plurality of crystallization samples;

allowing crystals of the material to form in plurality of crystallization samples; and

identifying which of the plurality of crystallization samples form crystals.